

THE RELATIONSHIP OF CARCASS GRADING FACTORS AND YIELD TRAITS OF HANWOO COW BEEF BY DIFFERENT SLAUGHTER AGES

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I. OBJECTIVES

The current study was conducted to determine the relationship between carcass grading traits and effect of slaughter age on carcass of Hanwoo cow beef.

II. MATERIALS AND METHODS

A total of 106 Hanwoo cows were slaughtered at the National Institute of Animal Science (Wanju, Korea). The day following slaughter, cow carcasses were randomly selected by official meat graders within 3 levels of maturity (Group 1 = less than 35 mo of age, $n=20$; Group 2 = 36–60 mo of age, $n=36$; Group 3 = 61–80 mo of age, $n=29$; Group 4 = above 81 mo of age, $n=21$), and their carcass traits were collected according to the Animal Products Grading Service manual. Carcasses were classified into one of 5 quality grades (1⁺⁺, 1⁺, 1, 2, or 3) and one of 3 yield grades (A, B, or C). Quality grade was primarily determined by marbling score and additionally adjusted by other carcass traits such as meat color, fat color, texture, and maturity when there was a particular defect in these traits. Yield grade was determined on the basis of estimated retail cut percentage, which was a function of backfat thickness, ribeye area, and cold carcass weight. Data were analyzed using Proc REG and CORR of SAS (SAS Institute Inc., Cary, NC). Simple correlation coefficients of carcass grading traits with the various slaughter ages were carried out using Pearson's correlations.

III. RESULTS

Average carcass weights were 364.50 kg for Group 1, 373.80 kg for Group 2, 390.80 kg for Group 3, and 387.10 kg for Group 4. Increased-maturity carcasses had the darker meat color, lower quality grade, and a higher yield grade ($P<0.05$). The *longissimus* area was strongly associated with live weight, carcass weight, yield of retail cut, fat, and bone ($P<0.001$). Retail cut yield index, yield grade, and meat color score were negatively correlated with live weight, carcass weight, meat, and fat weight. Maturity score was positively correlated with slaughter age ($P<0.001$). Increased maturity score was linked to older and more live weight and meat weight ($P<0.01$). Slaughter age showed a negative relationship ($r = -0.318$, $P<0.001$) with quality grade. In this study, however, the carcasses with a high marbling score had the greatest fat thickness and a better quality grade.

IV. CONCLUSION

In the Korean grading system, the quality grade depends on the marbling level of *longissimus* muscle. However, this study identified that the maturity level affected carcass grading traits of cow carcasses as much as the retail cut yield index, quality grade, yield grade, and meat color score. The older-maturity group showed obvious differences in meat quality compared to other groups.

Keywords: carcass grading, correlation, Hanwoo cow, retail cut